

The Development of CIPP Evaluation Model Instruments on the Application of Science Project Learning Assessment

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Abstract. This study aims to determine the feasibility and practicality of CIPP model evaluation instrument to evaluate the implementation of the project assessment to measure creative thinking skills in the review of the component context, input, process and product (CIPP). This study is a model of development using 4-D (Four-D Models) with the stages Define, Design, Develop and Disseminate. Subjects were students of grade VII SMP N 1 and SMP N 5 Sleman, Yogyakarta. Data collection techniques in this study applied non-test techniques. Instrument validation analysis in this study used V'Aikens. Data were obtained from seven rater (assessors) are derived from two lecturers (expert evaluation), 2 practitioners (Science teacher) and 3 colleagues. The CIPP model evaluation instrument has a coefficient of validation (V) of 0.90 to 1 so that it can be stated that all of the points on this instrument is valid, so the CIPP model evaluation instrument is suitable to use in evaluating the implementation of the project assessment in Science teaching.

Keyword: evaluation CIPP models, project assessment, science learning

INTRODUCTION

The curriculum is an educational plan which is used as a determinant of implementation and educational outcomes. In 2013 the government through the Ministry of Education and Culture implements Curriculum 2013. The implementation of the new Curriculum 2013 curriculum at all levels of education imply on student competency assessment process. Assessment of competencies achievement is done to monitor the process, as well the development progress achieved by students. Assessment as a process of collecting information about student learning outcomes cannot be separated by the learning of its existence. There is a curriculum assessment standard in 2013 that stipulated in Permendikbud No. 23 of 2016 which describes the scope of the assessment, which says "assessment of learning outcomes of students in primary education and secondary education includes aspects of attitudes, knowledge and skills". Therefore the teacher or educator of Curriculum 2013 are required to have the ability to assess student learning outcomes for all aspects such as cognitive, attitudes and skills. The assessment must be done in a balanced way, so that it can be used to determine the relative position of each learner to standards that have been applied [1].

One of the skills aspects that can be measured in Curriculum 2013 assessment is creative thinking skills. Skill think is capability to create something new, ability to produce new ideas by combining, changing and reapplying new ideas [2]. Creative thinking skills can be measured using assessment techniques projects. Assessment of the project is an assessment process which is long, complex and in the process, the learners require high-level thinking skills such as creativity, inquiry and process skills in solving [3]. In addition, the project assessment is an assessment of the tasks which the settlement process requires high level thinking skills such as analyzing, synthesizing and evaluating information [4].

Assessment of the project is one of the appropriate instruments to measure students' ability to think creatively, this is evidenced by the researcher Ryani Andryani (2016) who developed a project assessment instruments to measure creative thinking skills on the theme of the interaction of living organisms with the environment. The instrument has been applied in a science lesson on the theme of the interaction of living and its environment to measure the ability to think creatively with valid and reliable results. Some the studies have applied regarding learning based assessment project, of them results of other studies indicate that the critical thinking skills of students after learning by using IT-based project assessment instruments in the heat of main discussion is quite good with an average overall (classical) students by 74.7% and classified as good [5]. Other research also said that based learning project assessment influential significantly against skill creative thinking and learning outcomes students this is supported by n-gain in medium category [6].

The use of a limited assessment project has been unable to demonstrate the criteria of standardized instruments in this case the project assessment instruments that have been developed by Ryani Andryani (2016), so it should be the dissemination of its use. The use of project assessment instruments need to be combined with the evaluation program that will be used to evaluate the application. Evaluation of the implementation of the assessment program was conducted to determine the achievement and adherence to the implementation of the project assessment instruments to measure creative thinking skills. One of the aims to evaluations process is to make decisions [7] and therefore the evaluation results of this program are expected to be a reference to follow up the implementation of project assessment in a broader scope. Evaluation of project assessment instrument needs tools/instruments of evaluation to evaluate the instrument. One model of evaluation that can be used to evaluate the learning process is CIPP evaluation model. This model is expected to issue a decision that can be used by administrators in making the decision to implement the project assessment instruments in a wider scale [8].

The evaluation process is applied as a guideline to implement a plan/program [9]. Implementation of the program is employed through a systematic process that includes collecting, analyzing and interpreting information to define the learning outcomes of students in achieving the learning objectives [10]. Broadly speaking, the purpose of the evaluation is to assess the success of the learning process which is characterized by a change of learners' behavior after the learning process.

There are several models of evaluation that can be used as reference for current evaluation model development, among others:

1. Model Tyler
2. Model summative-formative
3. Model countenance
4. Model CIPP
5. Model Connaisance [11]

Those evaluation models have their own characteristics, but they have the same goal of collecting information relating to the case to be evaluated to be considered in decision-making and determine the follow-up of the results of the evaluation.

The research of implementation evaluation on project assessment is to measure the creative thinking skills using CIPP evaluation model. The components of the system will be evaluated with CIPP models are as follows:

1. Context

In this component, namely an evaluator can help administrators to plan decisions, determine program needs and formulate program objectives [8]. Moreover, an evaluator also determines the decision to the condition where the system will be evaluated and perform an analysis of the needs that have not been achieved, and identify the reason behind those requirements whether have not been or have not achieved [12]. In the context of components "record of objectives and bases for their choice along with a record of needs opportunities, and problems" [13].

2. Input

Input component is "to identify and assess system capabilities, alternative program strategies, procedural design for implementing the strategies, budgets, and schedules" [13]. Evaluation input is used to find viable solutions in returning the decision [9].

3. Process.

Evaluation process is a feedback process on the implementation of a system or program being evaluated [12]. Besides the evaluation process is the process of documentation of a program and to provide feedback on the extent to which the program can be run and what are the needs that must be revised [14]. Process evaluation addresses the implementation decisions that control and manage the program [15].

4. Product

Component product is "to collect descriptions and judgments of outcomes and to relate them to objectives and to context, input, and process information, and to interpret their worth and merit" [13]. Product evaluation is the result that has been achieved from the implementation of a program [16]. In addition, the product

evaluation is a process to measure, interpret and assess the extent to which the program can be implemented and achieved the purpose of implementation [17].

METHOD

Research methods

The type of research is the research and development. As developed in this study is the CIPP model evaluation instrument on the implementation of the project assessment to measure creative thinking skills. Development model in this research is used a model 4-D (Four-D Models) [18]. The model was conducted in stages, ie Define, Design, Develop and Disseminate with development model non-test instrument which measures the non-test instrument development model sorted and combined into 4D development model.

Procedures instrument development model of evaluation CIPP on the implementation of the project assessment in accordance with the 4D model adopted by step development of instruments non-test [19] as follows: 1) the preliminary study, 2) determine the specifications instrument, 3) develop an evaluation instrument, 4) determine the scale of evaluation instruments, 5) determine the system of scoring and manual scoring, 6) review of evaluation instruments, 7) assemble an evaluation instrument, 8) trial, 9) analysis of the test results, 10) fix the instrument, 11) take measurements, 12) interpretation of measurement results.

Place and Time Research

The subjects of the product of CIPP model evaluation instrument on the implementation of the project assessment were students of grade VII SMP N 1 and SMP N 5 Sleman of second semester of academic year 2016/2017.

Data Analysis Technique

Analysis of the validation of the content of the descriptive and quantitative basis. Quantitative analysis using Aiken's V analysis [20] by the following formula.

$$V = \frac{\sum s}{n(c-1)} \quad (1)$$

Note:

s = r - lo

n = number of assessors panel

lo = lowest score validity assessment

c = Highest score of validity assessment

r = score given by an appraiser

RESULTS AND DISCUSSION

A. Procedure the development of an evaluation instrument CIPP models

Products developed were CIPP model of evaluation instruments that will be used to evaluate the application of science teaching project assessment to measure students' creative thinking skills. Instruments developed an observation sheets and questionnaires were accompanied by grating and the assessment rubric. Procedure of CIPP model evaluation instrument development are as follows:

1. Preliminary Studies

Some aspects should be done on a preliminary study include: Analysis of the teachers' competence and materials analysis. Teacher competency analysis conducted to obtain information on how appraisal and assessment instruments used by teachers. This analysis was conducted by having interviews with some

of the Junior High School Science teachers. Analysis of material is done by studying KI and KD in Curriculum 2013. The curriculum used in this study, namely KD: 1.1 Admire the order and complexity of God's creation on the physical and chemical aspects of life in the ecosystem, and the role of humans in the environment and implement it as their religion; 2.1 Demonstrate the behavior of scientific (curious, objective, honest, thorough, meticulous, diligent, careful, responsible, open-minded, critical, creative, innovative and caring to environment) in their daily activities as a form of implementation of the attitude of doing experiment and discuss; 3.8 Describe interaction of other living being of life and the environment; 3.9 Describe the contamination and its impacts on living beings; and 4:12 Present the results of observation of the interaction of living being with the surrounding environment.

2. *Determine the Instrument's Specifications*

CIPP model evaluation instrument indicators are as follows table 1.

3. *Writing instruments*

Writing instrument was done by considering the substance, construction and language. CIPP model evaluation instrument contains: title, usage instructions, and the observation sheet

4. *Determine the Scale of The Instruments*

The scale of the instruments used in the development of evaluation instruments are applying a Likert scale with a score of 1-4. The highest score on each indicator is 4 and the lowest 1.

5. *Reviewing Instruments*

CIPP model evaluation instrument on the implementation of the project assessment in the validation of learning science by seven raters. The 2 raters are from Science teachers and 5 raters are post-graduate students of Science Education.

B. Result of an Evaluation Instrument Validation

Product validation based on the assessment of substance, construction and language, further validation was analyzed by V'aiken, it aims to measure the coefficient (V) content validity. Score assessment from 7 validators then analyzed using Aiken's formula to calculate content validity coefficient (V). Aiken's figures V obtained and confirmed by the figures in Aiken's Table V limit for the number of category 4 with 7 votes appraiser is 0.78 [21]. The results of calculation of the value V of the 7th validator on every item sheet CIPP model evaluation instrument on the implementation of the project assessment criteria are valid. V value between 0.90 and 1 proves that every item statement is said to be valid.

Based on the results of the analysis showed that the amount of content validity of V instrument has exceeded the minimum threshold, thereby ratings CIPP model evaluation instruments meet the content validity. In addition to know the magnitude of the validity of the instruments developed, the validity aiming to get advice that will be used as an instrument for consideration before the test at the school.

C. Revision of the Product

CIPP model of evaluation instruments revised by referring to some of the suggestions of the validator, some suggestions / improvements obtained from the validator among others:

1. Fixed some terms / languages for example EYD substituted EBI, KKM replaced KBM.
2. Fixed some aspects in the interview guides that can be sorted according to topic
3. The use of the phrase on the questionnaire to be further clarified in order to be more easily understood, especially in the student questionnaire, for example: learning as usual should use a teaching lecture/conventional

TABLE 1. Component and Indicator of evaluation instrument CIPP models

No	Aspect	Component	Indicator
1.	<i>Context</i>	Conformity assessment instrument projects with KI and KD	<ol style="list-style-type: none"> 1. Assessment instruments are presented in accordance with main competencies of Curriculum 2013 2. The material contained on assessment instruments in accordance with the basic competencies 3. The indicator on the instrument according to the indicators of achievement assessment used KD
2.	<i>Input</i>	Teacher's competence	<ol style="list-style-type: none"> 1. Pedagogic Competence <ol style="list-style-type: none"> a. Understand the learners' characteristics b. Communicate effectively, empathetic and polite with learners c. Conduct assessment and evaluation processes and outcomes of learning 2. Personality competence <ol style="list-style-type: none"> a. Act in accordance with the norms of religion, religion, law and national culture of Indonesia b. Present self as a person who is honest and noble 3. Professional Competence <ol style="list-style-type: none"> a. Master of knowledge content and concepts that support the subjects of teaching b. Master basic standards of competence and competence of teaching subjects c. Develop teaching learning materials
		Learning Environment	<ol style="list-style-type: none"> 1. There are facilities and infrastructure that support the assessment of the project 2. There are science labs 3. There are practical tools used to measure levels of environmental pollution
3.	<i>Process</i>	Instruments Implementation	<ol style="list-style-type: none"> 1. At the beginning of learning, teachers inform students about the aspects to be assessed and the achievement criteria 2. Teachers inform students about the procedures and the types of assessments that will be used 3. Students carry LKPD learning based on the interaction of living beings with the environment 4. Teachers assess students' skills with the observation of activity 5. Instruments project assessment is filled out by observation
		Students' response to learning by using LKPD interaction of living beings with their environment	<ol style="list-style-type: none"> 1. The response of students to learning by using LKPD interaction of living beings with the environment 2. The attitude of the students that arise when applying the learning by using LKPD interaction of living beings with the environment 3. Growing up creative thinking skills 4. Students learn in groups 5. Dare to ask questions to the teacher and friend
4.	<i>Product</i>	Instruments Application Portfolio Assessment Results	<ol style="list-style-type: none"> 1. Instrument project assessment can map the creative thinking skills of students 2. The student's interest in receive / follow lessons 3. The level of mastery of the material 4. Instruments project assessment contributes to the determination of students' mastery learning basic competency-based KKM

CONCLUSION

Conclusion of this study are as follows: (1) the procedure of the evaluation instrument CIPP model of development follow the stages of research and development. (2) The quality of the developed products the development CIPP model of an evaluation instrument has a valid criterion as an instrument, in terms of the aspect of the construct, substance, and language. All These aspects meet a very good criterion and can be used with revisions.

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